with adhesive layer **660**. A liquid photoimagable layer **670** may be formed over adhesive **660**.

A side view of a contact **122** is shown in the following figure.

FIG. **7** illustrates a side cutaway view of a contact according to an embodiment of the present invention. In this example, the contact may be formed primarily of stainless steel layer **640**. Nickel layer **712** may be plated on a surface of the stainless steel layer **640**. Nickel layer **712** may be tinned with solder layer **720** to form a connection to a conductive layer in or on a flexible circuit board. A second nickel layer **710** may be placed on the far side of stainless steel layer **640**. Nickel layer **710** may be gold plated with gold layer **642** to form a surface of contact **122**.

Again, embodiments of the present invention may provide connector receptacles that may be located in, and may connect to, various types of devices, such as portable computing devices, tablet computers, desktop computers, laptops, all-in-one computers, wearable computing devices, cell phones, smart phones, media phones, storage devices, portable media players, navigation systems, monitors, power supplies, adapters, remote control devices, chargers, and other devices. These connector receptacles may provide pathways for signals that are compliant with various standards such as Universal Serial Bus (USB), High-Definition Multimedia Interface® (HDMI), Digital Visual Interface (DVI), Ethernet, DisplayPort, Thunderbolt™, Lightning™, Joint Test Action Group (JTAG), test-access-port (TAP), Directed Automated Random Testing (DART), universal asynchronous receiver/transmitters (UARTs), clock signals, power signals, and other types of standard, non-standard, and proprietary interfaces and combinations thereof that have been developed, are being developed, or will be developed in the future. In various embodiments of the present invention, these interconnect paths provided by these connector receptacles may be used to convey power, ground, signals, test points, and other voltage, current, data, or other information.

In a specific embodiment of the present invention, a connector receptacle may provide contacts for more than one type of interface. For example, contacts for one or more data interfaces, such as a UART, USB, DVI, Ethernet, or other type of data interfaces may be included. Also, contacts for one or more testing interfaces, such as JTAG, DART, or TAP testing interfaces may be included.

Contacts for power, clock, ground, connect detect, and other types of contacts may also be included. In one embodiment, power provided by an internal battery may be measured at a power pin. Disconnect diodes or other techniques may be used to allow a higher voltage to be provided at the pin. When a higher voltage is provided, the internal circuitry may enter a testing, programming, or other mode.

Again, connector receptacles employed by embodiments of the present invention may be formed in various ways of various materials. For example, a receptacle may include a flexible circuit board. The flexible circuit board may include various layers having traces or planes on them, where the various traces and planes are connected using vias between layers. The flexible circuit board may be formed as part of a larger flexible circuit board that may form a logic or motherboard in an electronic device. In other embodiments of the present invention, these flexible circuit boards may be formed of conductive or metallic traces and planes in or on a nonconductive body. The nonconductive body may be formed of plastic or other materials.

Again, in various embodiments of the present invention, enclosures (in some cases), contacts, brackets, power and ground planes, traces, fasteners, and other conductive portions of connector receptacles may be formed by stamping, metal-injection molding, machining, micro-machining, 3-D printing, or other manufacturing process. The conductive portions may be formed of stainless steel, steel, copper, copper titanium, phosphor bronze, or other material or combination of materials. They may be plated or coated with nickel, gold, or other material. The nonconductive portions, such as the enclosures (again, in some cases), silicone gaskets, fasteners and other portions, may be formed using injection or other molding, 3-D printing, machining, or other manufacturing process. The nonconductive portions may be formed of silicon or silicone, rubber, hard rubber, plastic, nylon, liquid-crystal polymers (LCPs), ceramics, or other nonconductive material or combination of materials. Flexible circuit boards may be replaced by other substrates, such as printed circuit boards, in many embodiments of the present invention.

The above description of embodiments of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form described, and many modifications and variations are possible in light of the teaching above. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications to thereby enable others skilled in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. Thus, it will be appreciated that the invention is intended to cover all modifications and equivalents within the scope of the following claims.

What is claimed is:

1. A connector receptacle comprising:

a device housing;

a recess in the device housing, the recess including a sidewall and a bottom surface, the bottom surface comprising a plurality of openings;

a flexible circuit board;

a plurality of contacts located on a surface of the flexible circuit board, each contact having a contacting surface to connect to a corresponding contact in a corresponding connector when the corresponding connector is mated to the connector receptacle, each of the contacting surfaces between the flexible circuit board and the bottom surface of the recess in the device housing, wherein each of the plurality of contacts are aligned with a corresponding opening in the plurality of openings, wherein the plurality of contacts do not extend through the bottom surfave of the recess in the device housing; and

an insulative layer between the flexible circuit board and the bottom surface of the recess.

2. The connector receptacle of claim **1** wherein the insulative layer forms a water seal.

3. The connector receptacle of claim **2** wherein the insulative layer is a silicone gasket.

4. The connector receptacle of claim **1** wherein the insulative layer includes a raised portion around the plurality of contacts.

5. The connector receptacle of claim **4** wherein the insulative layer is a silicone gasket.

6. The connector receptacle of claim **1** further comprising a cover seal located in the recess formed in the device housing.

7. The connector receptacle of claim **6** wherein the cover seal is attached to the device housing using a first adhesive layer.